

**IN THE ABSTRACT:**

Please add the attached Abstract of the Disclosure on a separate page.

**IN THE CLAIMS:**

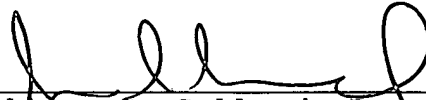
Please cancel claims ~~1-20~~ and replace with new claims 21-38 as attached hereto.

**REMARKS**

By this Preliminary Amendment, the application has been amended to conform with U.S. practice, the cross-reference to the related application has been inserted on page 1. Also, claims 1-20 have been replaced by new claims 21-38. In addition, an Abstract of the Disclosure has been added on its own separate. No new matter has been introduced.

Entry of this amendment is respectfully requested.

Respectfully submitted,  
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Lisa L. Vulpis

21. A thermoplastic-vulcanizate comprised of four components (A, B, C, D), notably

- a thermoplastic synthetic resin (A);
- a substantially non-cross-linked polyethylene (B);
- a rubber (C) having a degree of cross-linking of  $> 90\%$  and being compatible with the thermoplastic synthetic resin (A) in regard to the phase inversion; and
- a plasticizer (D);

as well as of the standard blend ingredients (E) comprising at least one cross-linking agent or cross-linking system, whereby the mixture is comprised of the following quantitative proportions (in % by weight) based on the sum of the four components (A, B, C, D):

- |                                     |                       |
|-------------------------------------|-----------------------|
| - Thermoplastic synthetic resin (A) | 5 to 20               |
| - Polyethylene (B)                  | 25 to 5 or 15 to 5    |
| - Rubber (C)                        | 30 to 50              |
| - Plasticizer (D)                   | 40 to 25 or 50 to 25. |

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22. The thermoplastic vulcanizate according to claim 21, characterized in that the standard ingredients (E) of the blend are added in from 0.02 to 0.5 times the amount by weight based on the sum of the four components (A, B, C, D).

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23. The thermoplastic vulcanizate according to claim 21, characterized in that the thermoplastic synthetic resin (A) is a polypropylene based on a homopolymer, block polymer or copolymer preferably in conjunction with high crystallinity.

24. The thermoplastic vulcanizate according to claim 21, characterized in that the polyethylene (B) is a VLDPE with a density of from 0.88 to 0.91 g/cm<sup>3</sup> at 20°C and/or a ULDPE with a density of from 0.85 to 0.88 g/cm<sup>3</sup> at 20°C.

25. The thermoplastic vulcanizate according to claim 21, characterized in that the rubber (C) is an EPDM rubber, whereby the third monomer is preferably an ethylidene-norbornene.

26. The thermoplastic vulcanizate according to claim 21, characterized in that the rubber (C) has a degree of cross-linking of > 90%, preferably > 95%.

27. The thermoplastic vulcanizate according to claim 21, characterized in that the plasticizer (D) is a plasticizer oil, in particular a paraffinic oil with a component of aromatics of <4% by weight, preferably a paraffinic plasticizer oil free of

aromatics.

B2 28. A method for producing a thermoplastic vulcanizate according to claim 21, characterized in that the rubber (C) in the still-unvulcanized state is first mixed with a plasticizer (D) and the standard blend ingredients (E) in a roll or screw extruder, whereby the standard blend ingredients preferably still not yet contain a cross-linking agent or cross-linking system.

A 29. The method for producing a thermoplastic vulcanizate according to claim 28, characterized by the following process steps:

- feeding of the unvulcanized rubber (C) and the standard blend ingredients (E);
- meltdown and dispersion of the rubber (C) as well as of the standard blend ingredients (E); and
- addition of the plasticizer (D) while mixing with the two charged components (C, E).

30. The method for producing a thermoplastic vulcanizate according to claim 28, characterized in that the plasticizer (D) and the standard blend ingredients (E) are admixed into the unvulcanized rubber (C) in the first third part of the roll or screw extruder.

31. The method for producing a thermoplastic vulcanizate

according to claim 28, characterized in that mixture comprised of the thermoplastic synthetic resin (A), and the non-cross-linked polyethylene (B) is added downstream of the first third part of the roll or screw extruder.

32. The method for producing a thermoplastic vulcanizate according to claim 21, characterized in that in a roll or screw extruder, the rubber (C) in the still-unvulcanized state is substantially simultaneously mixed with the thermoplastic synthetic resin (A), the non-cross-linked polyethylene (B), the plasticizer (D) and the standard blend ingredients (E), whereby the standard blend ingredients preferably not yet contain a cross-linking agent or cross-linking system.

33. The method for producing a thermoplastic vulcanizate according to claim 32, characterized in that the thermoplastic synthetic resin (A), the non-cross-linked polyethylene (B), the plasticizer (D) and the standard blend ingredients (E) are admixed into the unvulcanized rubber (C) in the first third part of the roll or screw extruder.

34. The method for producing a thermoplastic vulcanizate according to claim 28, characterized in that a non-cross-linked rubber (C) is used, said rubber being present in a flowable state, preferably in the form of a flowable pellet or granulate.

35. The method for producing a thermoplastic vulcanizate

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according to claim 28, characterized in that following mixing of the four components (A, B, C, D) and the standard blend ingredients (E) without the cross-linking agent or cross-linking system, the cross-linking agent or the cross-linking system is now added in conjunction with the following steps of the process:

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- Dynamic vulcanization of the rubber (C) at high shear and expansion rates;
  - degassing of the dynamically vulcanized plastic melt, in particular under vacuum; and
  - building up the pressure for ejecting the thermoplastic vulcanizate from the mold.

36. The method for producing a thermoplastic vulcanizate according to claim 35, characterized in that all steps of the method connected with the addition of the cross-linking agent or cross-linking system are carried out in the second half of the roll or screw extruder.

37. The method for producing a thermoplastic vulcanizate according to claim 28,

characterized in that a cross-linking agent or cross-linking system is used that cross-links the rubber (C) on the one hand, and prevents the polyethylene (B) from cross-linking on the other, preferably based on a phenolic resin, in particular again in connection with an accelerator consisting of tin dichloride.

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The first part of the report is a general statement of the purpose of the study. The second part is a description of the methods used. The third part is a description of the results. The fourth part is a discussion of the results. The fifth part is a conclusion.

Marked-Up Version Showing Changes Made

On page 5, please substitute the second complete paragraph with the following paragraph:

--Said problem is solved [according to patent claim 1] by a thermoplastic vulcanizate comprised of a composition according to claim 21, [claim 1] whereby useful material parameters are specified in claims [2 to 9] 22 to 27.--

On page 5, please substitute the fourth complete paragraph with the following paragraph:

--In said conjunction, claims [10 to 20] 28 to 38 contain useful process steps.--

On page 7, please substitute the first complete paragraph with the following paragraph:

--The component of the non-cross-linked polyethylene [usefully] amounts to from 5 to 25% by weight and from 5 to 15% by weight, respectively, again based on the sum of the four components (A, B, C, D).--

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On page 7, please substitute the last complete paragraph with the following paragraph:

--The at least partially vulcanized rubber (C) [usefully] has a degree of cross-linking of > 90%, in particular > 95%. A method for the determination of the degree of cross-linking is described in patent US-A-4,311,628.--

On page 8, please substitute the third complete paragraph with the following paragraph:

--The quantitative proportion of the plasticizer component [preferably] amounts to from 25 to 40% by weight or from 25 to 50% by weight, respectively, again based on the sum of the four components (A, B, C, D).--